Arguments Against Rejection

Claims 2, 4, 5, 7, 8, and 10 are amended. Amendments are supported by original filed specification and claims.

CLAIM REJECTION – 35 U.S.C. § 102(e)

Claims 2-3 and 7-9 are rejected as being anticipated by Duggal et al., U.S. Patent No. 6,133,820.

The rejection is traversed.

Duggal et al. fails to disclose each and every element of the claimed invention as arranged in claims 2-3 and 7-9 and thereby fails to anticipate the invention.

Duggal et al. describes a reinforcing web composed of continuous fibers arranged to form a three-dimensional network or two-dimensional planar mesh, parallel to the electrodes *(see col. 4, lines 65-67)*, and having PCT material disposed therein. Web materials include metals and plastics compatible with the PCT fill and stable at temperatures encountered during switching events. PCT fill, rather than the reinforcing web, exerts the expansion force referred to in column 5 via pyrolysis or vaporization of the binder component of the PCT fill. *(see col. 3, lines 1-25)* Current interrupt results when the gaseous binder separates the electrodes from the otherwise conductive PCT material causing a gap between electrodes and PCT material.

The present invention is composed of a pressure conduction composite sandwiched between two plates. Plates communicate a force onto the pressure conduction composite so as to compress the composite and cause it to be conductive. The pressure conduction composite has a plurality of columnar cavities traversing the thickness of the composite and arranged so as to bisect the plates.

The roughened surface referred to in column 4 of Duggal et al. is nothing more than surface imperfections and neither describes nor suggests the cavities of the present invention.

In the present invention, a temperature sensitive material resides within each cavity and contacts the plates. The temperature sensitive material expands in response to a temperature increase within the pressure conduction composite and contracts in response to a temperature decrease within the pressure conduction composite. The temperature sensitive material is not a PCT composition and does not decompose into a gas, as required by Duggal et al. Expansion of the temperature sensitive material exerts a pressure onto the plates so as to decompress the composite and cause it to be resistive. Contraction of the temperature sensitive material restores the pressure within the composite causing it to be conductive again. Unlike Duggal, current interrupt by the present invention is gapless.

The two plates in Duggal et al. are conducting unlike the two non-conducting plates in claim 7 of the present invention. Electrodes are rather third and fourth plates in claim 9 and graphically represented in FIGS. 4a and 4b of the present application.

For these reasons, it is respectfully submitted that the Section 102(e) rejection is misplaced, and reconsideration and withdrawal of the same are respectfully requested.

Claims 2, 4, 6, 7, 9, and 10 are rejected as being anticipated by Grosse-Wilde et al., U.S. Patent No. 5,644,283.

The rejection is traversed.

Grosse-Wilde et al. fails to disclose each and every element of the claimed invention as arranged in claims 2, 4, 6, 7, 9, and 10 and thereby fails to anticipate the invention.

Grosse-Wilde et al. teaches a high-current resistor having a layer composed of

carbon/carbon-black particles with pore-like cavities there between. Pore-like cavities are irregular shaped voids of limited extent between particles, as shown in FIGS. 2a and 2b. Pores are filled with a binder agent, examples including polymers, waxes, grease, tar, pitches, and the like. *(see col. 5, lines 42-44 and col. 6, lines 10-13)* As such, the composite layer, namely, particles and binding agent, is not porous.

Furthermore, the two plates in Grosse-Wilde et al. are conducting unlike the two non-conducting plates in claims 4 and 7 of the present invention. In the present invention, electrodes are rather third and fourth plates in claims 6 and 9 and graphically represented in FIGS. 4a and 4b of the present application.

The present invention is composed of a pressure conduction composite sandwiched between two plates. Plates communicate a force onto the pressure conduction composite so as to compress the composite and cause it to be conductive. The pressure conduction composite has a plurality of columnar cavities traversing the thickness of the composite and arranged so as to bisect the plates. The columnar cavities of the present invention are neither described nor suggested by Grosse-Wilde et al.

In the present invention, a temperature sensitive material resides within each cavity and contacts the plates. The temperature sensitive material expands in response to a temperature increase within the pressure conduction composite and contracts in response to a temperature decrease within the pressure conduction composite. The temperature sensitive material does not decompose into gaseous decomposition products, as required by Grosse-Wilde et al. *(see col. 5, lines 56-67 and col. 2, lines 49-56)* Expansion of the temperature sensitive material exerts a pressure onto the plates so as to decompress the composite causing it to be resistive. Contraction

of the temperature sensitive material restores the pressure within the composite causing it to be conductive again.

For these reasons, it is respectfully submitted that the Section 102(e) rejection is misplaced, and reconsideration and withdrawal of the same are respectfully requested.

Claims 5 and 8 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Grosse-Wilde in view of Shaw, Jr. et al.

The rejection is traversed.

The following technical differences are noted between the present invention and Grosse-Wilde et al and Shaw, Jr. et al.

The present invention teaches a composite composed of conductive filler disposed within a non-conductive matrix and columnar cavities there through. Grosse-Wilde et al. teaches carbon/carbon-black particles forming a porous structure with binding agent therein. As such, the composite structure of Grosse-Wilde et al., namely, particles and binding agent, is not porous. Shaw, Jr. et al. teaches a porous pressure plate, but does not teach a porous composite. In light of the absence of a porous composite in Grosse-Wilde et al., the combination of a composite with columnar cavities and porous plates could not be obvious to one skilled in the art.

Furthermore, the combination of columnar cavities within a pressure conduction composite, composed of a conductive filler and non-conductive matrix, and gasless temperature sensitive material, as described above for the present invention, are neither described nor claimed, in whole or part, in Grosse-Wilde et al. and Shaw, Jr. et al.

For the reasons stated herein, it is respectfully submitted that the Section 103(a) rejection is misplaced, and reconsideration and withdrawal of the same are respectfully requested.

Concluding Remarks

In view of the above, it is submitted that the amended claims are in condition for allowance. Reconsideration of the rejections is requested. If, after reviewing the above, the Examiner believes any issues remain unresolved, the favor of an Examiner interview is requested and the Examiner is requested to contact the undersigned, by telephone, to schedule the same.

Respectfully submitted,

Michael G. Crilly, Esquire
Registration No. 44,631
104 South York Road
Hatboro, PA 19040
Telephone: 215-672-6220
Fax: 215-672-1639
Email: crilly@erols.com

Express Mail Certificate

Applicant: Bower et al.

Application: Current Control Device

SERIAL No.: 10/810,521

Express Mail No.: EL948277628US

Date of Deposit: Feb. 22, 2005

I hereby certify that this Reply to Office Action is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date shown above and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Michael G. Crilly
Patent Attorney
Registration No. 44,631